DOCKET 98622668

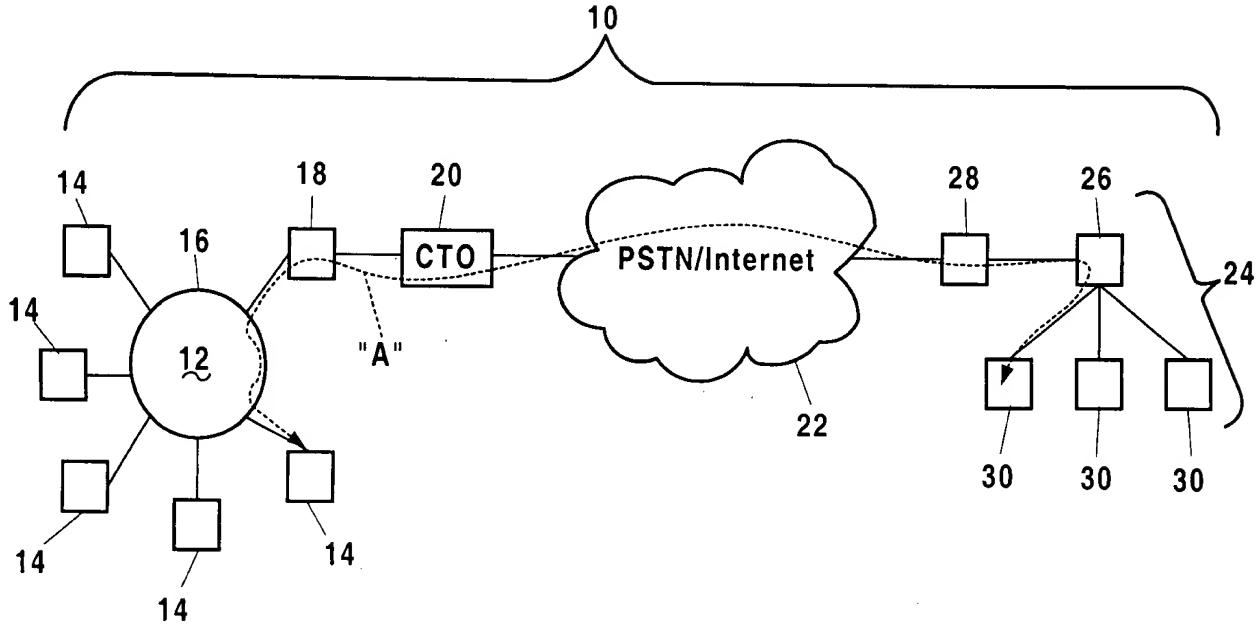

Fig. 1 (Prior Art)

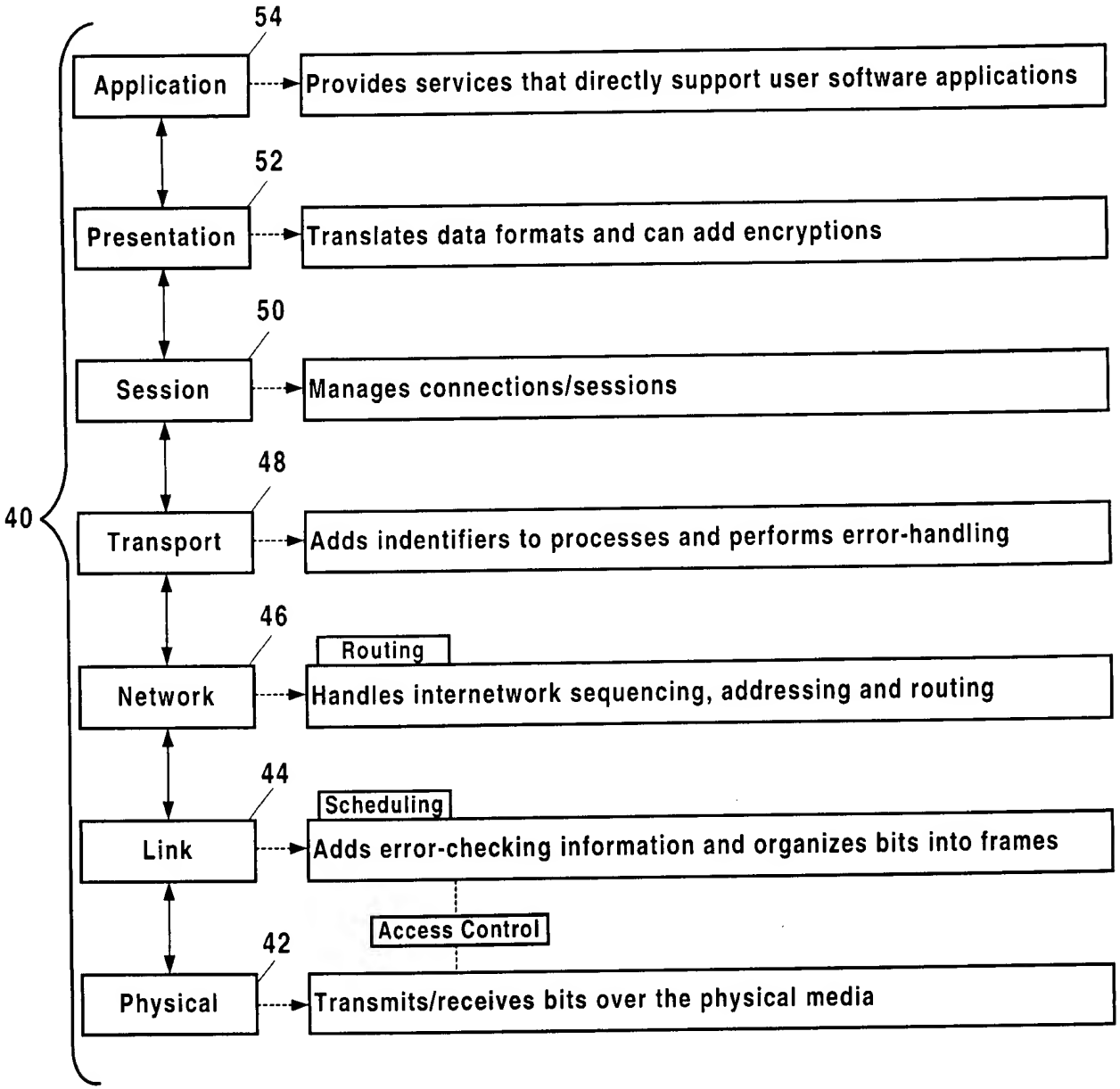

Fig. 2 (Prior Art)

DOCKET 98-0220

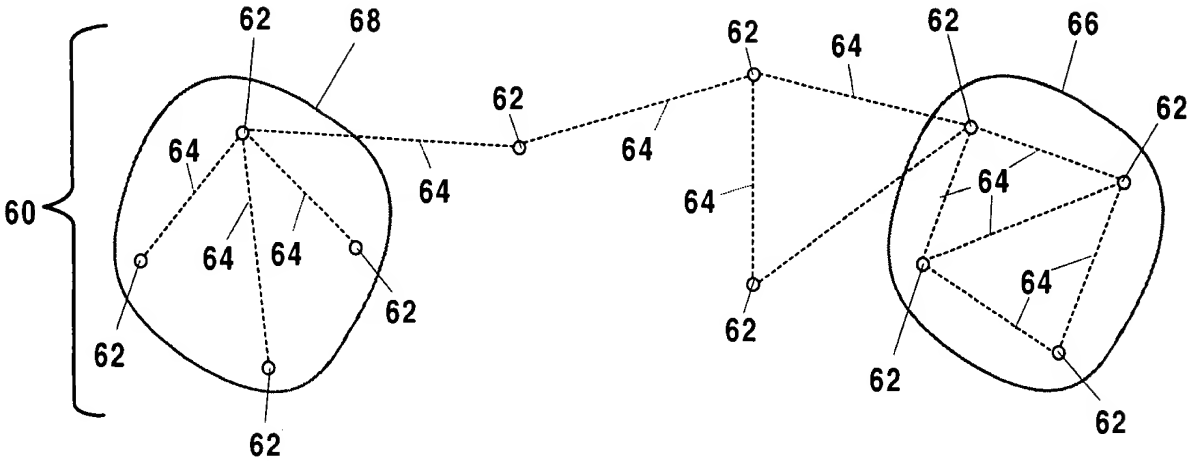

Fig. 3 (Prior Art)

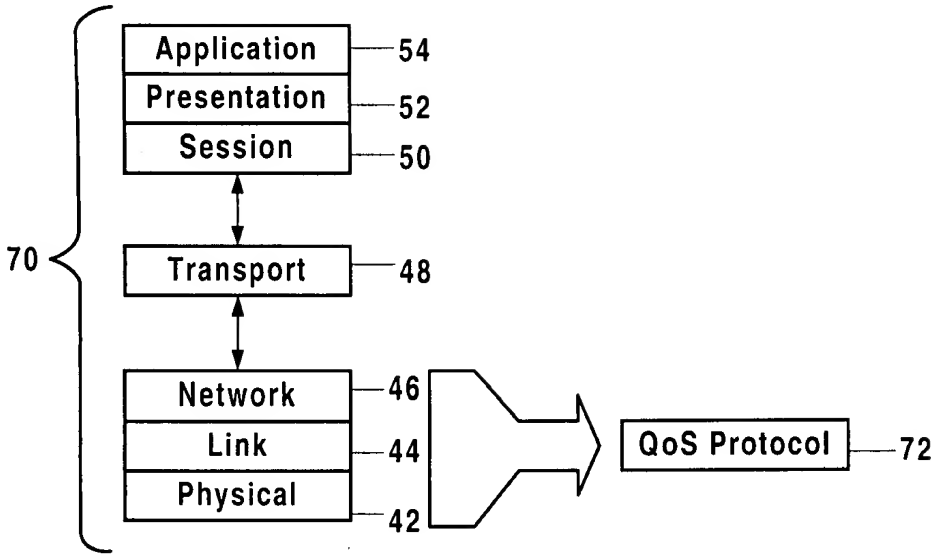
Application
54
Presentation
52
Session
50
70
Transport
48
Network
46
Link
44
Physical
42
QoS Protocol
72

Fig. 4

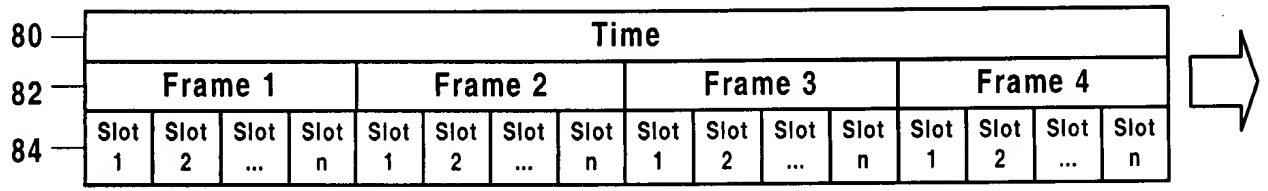
80
Time
82
Frame 1
Frame 2
Frame 3
Frame 4
84
Slot 1
Slot 2
Slot ...
Slot n

Fig. 5

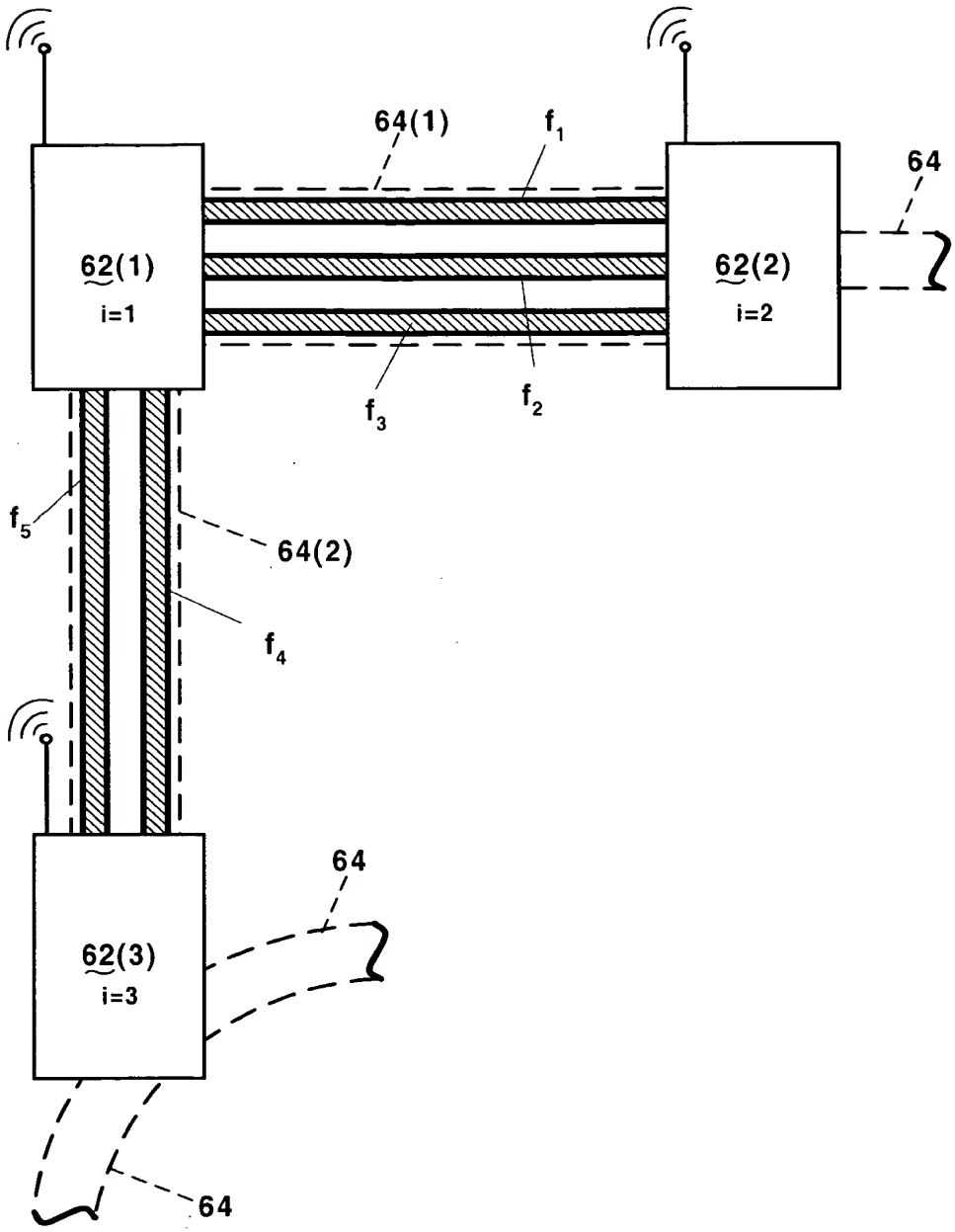

Fig. 6

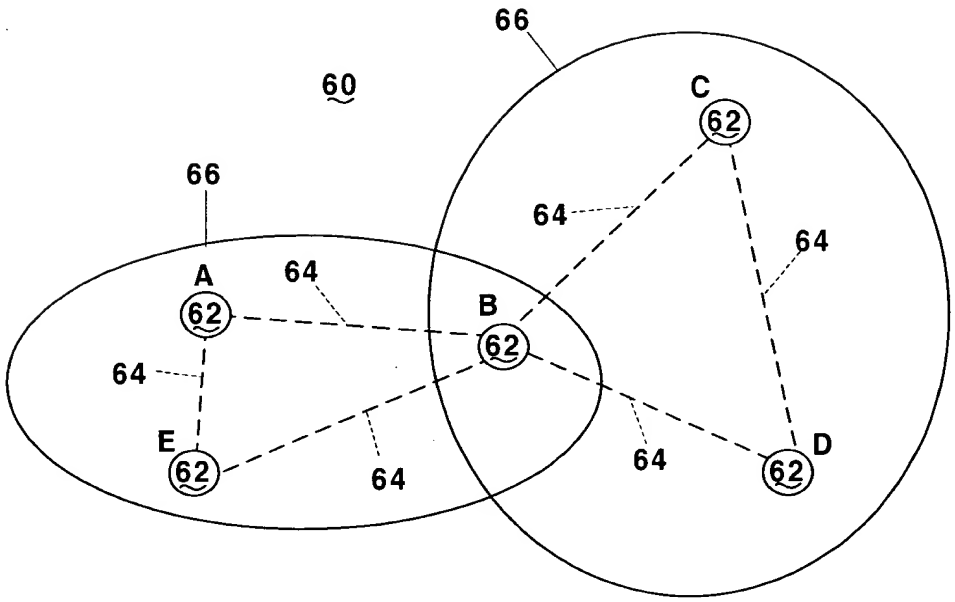

Fig. 7

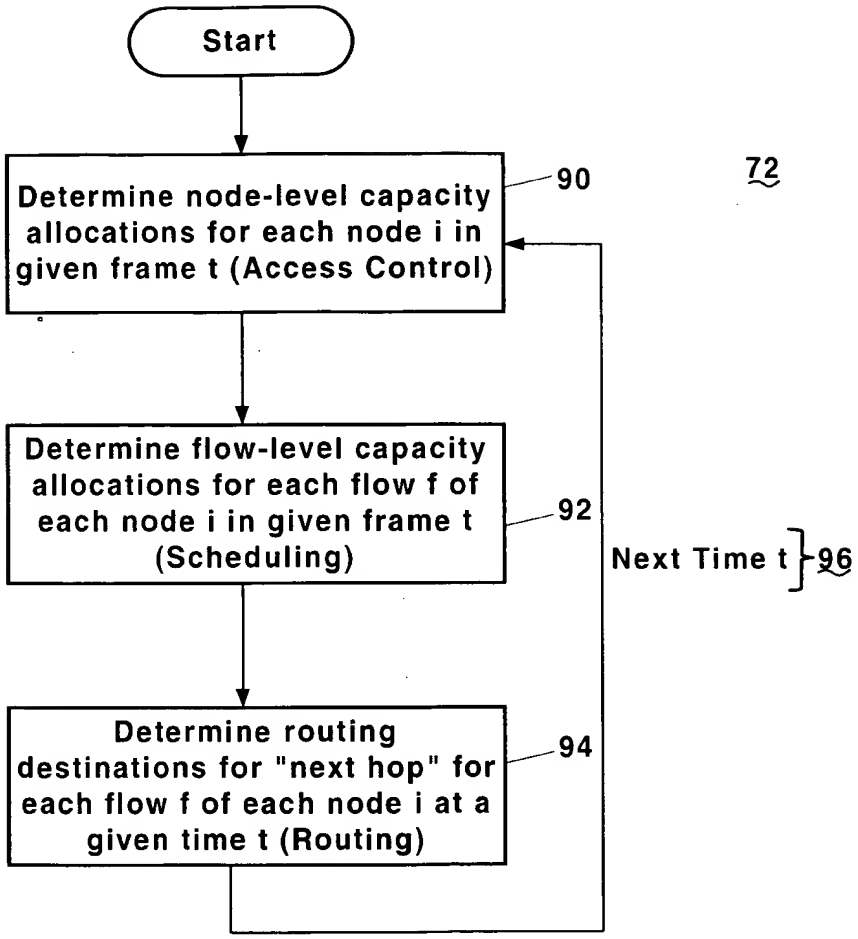
Start
Determine node-level capacity allocations for each node i in given frame t (Access Control)
90
72
Determine flow-level capacity allocations for each flow f of each node i in given frame t (Scheduling)
92
Next Time t
96
Determine routing destinations for "next hop" for each flow f of each node i at a given time t (Routing)
94

Fig. 8

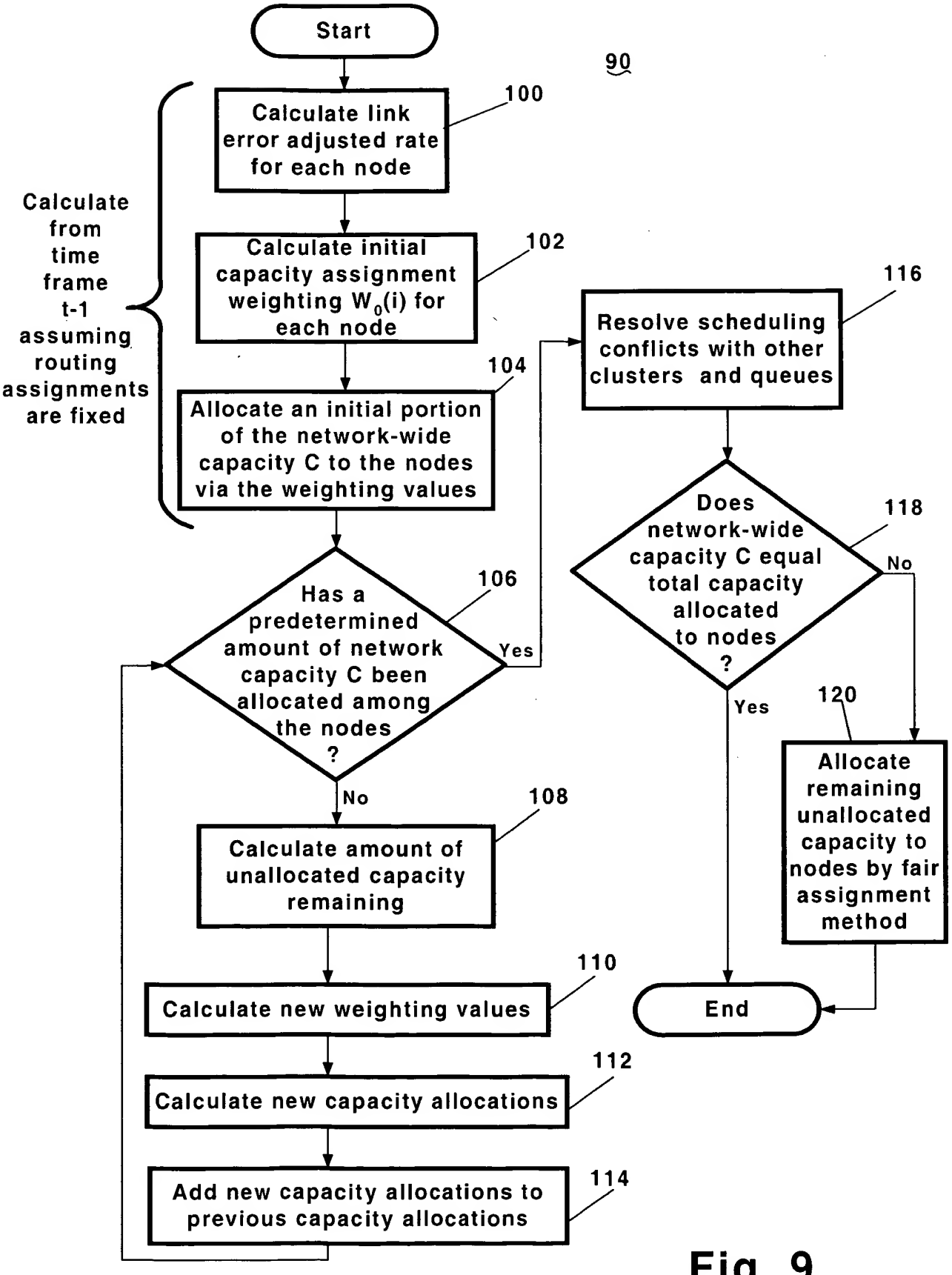
Start
90
Calculate link error adjusted rate for each node
100
Calculate initial capacity assignment weighting $W_0(i)$ for each node
102
Allocate an initial portion of the network-wide capacity C to the nodes via the weighting values
104
Calculate from time frame t-1 assuming routing assignments are fixed
Has a predetermined amount of network capacity C been allocated among the nodes ?
106
Yes
No
Calculate amount of unallocated capacity remaining
108
Calculate new weighting values
110
Calculate new capacity allocations
112
Add new capacity allocations to previous capacity allocations
114
Resolve scheduling conflicts with other clusters and queues
116
Does network-wide capacity C equal total capacity allocated to nodes ?
118
No
Yes
Allocate remaining unallocated capacity to nodes by fair assignment method
120
End

Fig. 9

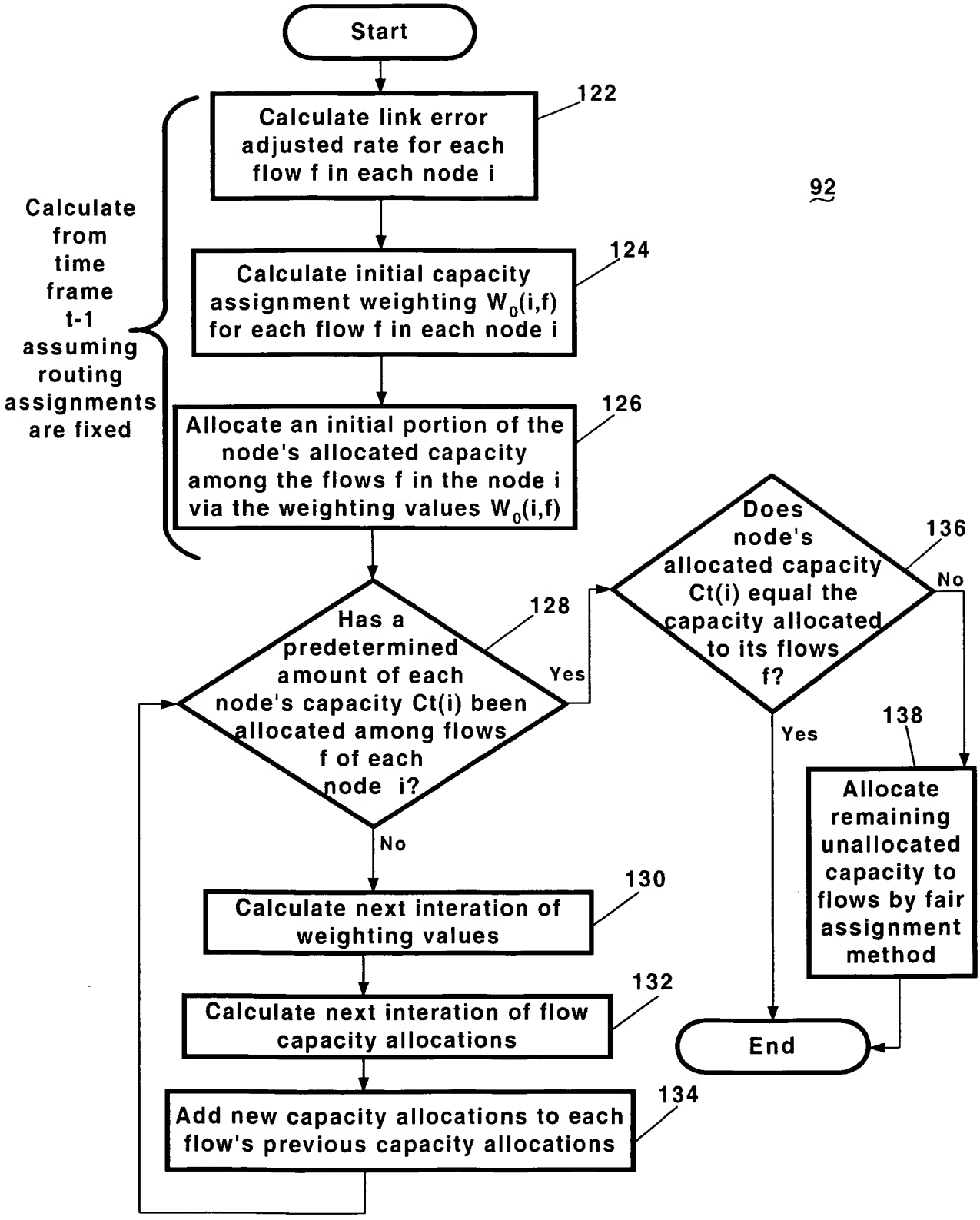
Start
Calculate link error adjusted rate for each flow f in each node i
122
92
Calculate from time frame t-1 assuming routing assignments are fixed
Calculate initial capacity assignment weighting $W_0(i,f)$ for each flow f in each node i
124
Allocate an initial portion of the node's allocated capacity among the flows f in the node i via the weighting values $W_0(i,f)$
126
Does node's allocated capacity Ct(i) equal the capacity allocated to its flows f?
136
No
Yes
Has a predetermined amount of each node's capacity Ct(i) been allocated among flows f of each node i?
128
Yes
No
138
Allocate remaining unallocated capacity to flows by fair assignment method
Calculate next interation of weighting values
130
Calculate next interation of flow capacity allocations
132
End
Add new capacity allocations to each flow's previous capacity allocations
134

Fig. 10

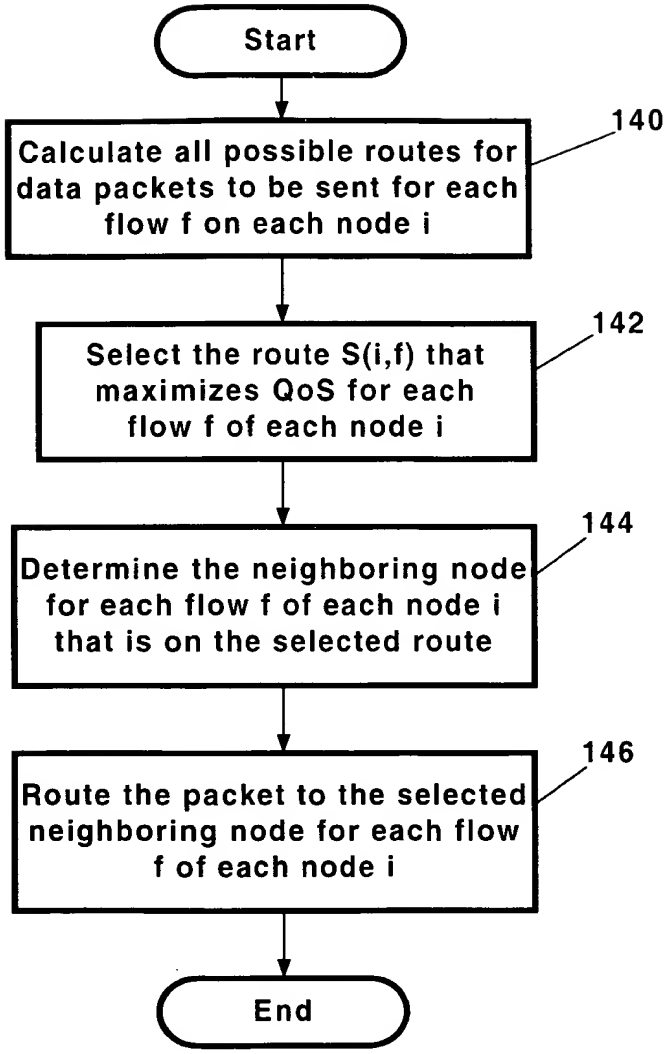
Start
94
Calculate all possible routes for data packets to be sent for each flow f on each node i
140
Select the route S(i,f) that maximizes QoS for each flow f of each node i
142
Determine the neighboring node for each flow f of each node i that is on the selected route
144
Route the packet to the selected neighboring node for each flow f of each node i
146
End

Fig. 11